



sofis

valve operation

Netherlocks interlocks



About process interlocking

Accidents in process industries are fairly infrequent. However, when they do happen, they tend to be serious in scale and nature. Operator error and failure to follow procedures or bypassing steps, carry great risks. The start-up, shut-down and shift hand-overs are all examples of where one small slip in due diligence, can have severe consequences.

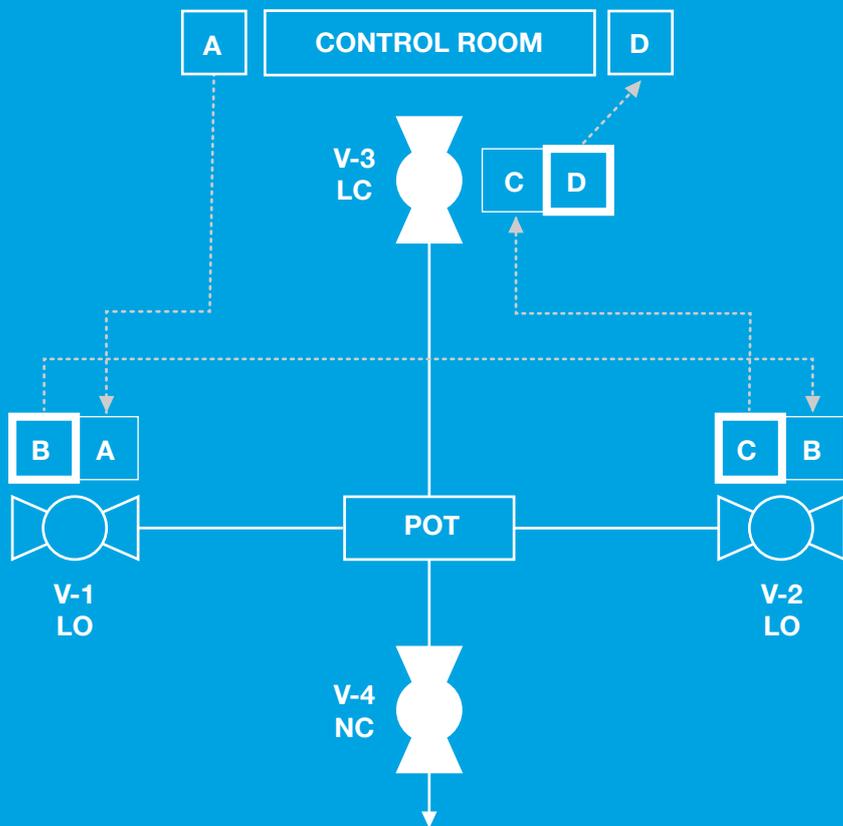
Guarantee predefined operating procedures

Using Netherlocks (NL) interlocks, you eliminate human error by only allowing nominated valves to be opened or closed in the correct sequence. There are no short-cuts. This means you guide your operators through safe work procedures.

Using our interlocks:

- You create a safer working environment for your team of operators and those around them.
- You promote adherence to safe working procedures and reduce downtime.
- You protect the environment through minimising risk.
- You reduce potential costs by preventing product loss and reputational risk.





1. Take key A from the control room
2. Insert key A in V1 and close V1, releasing key B
3. Take key B to close V2, releasing key C
4. Take key C to open V3, releasing key D
5. Return key D to control room



-  KEY FREE
-  KEY TRAPPED
-  VALVE LOCKED OPEN
-  VALVE LOCKED CLOSED

NL interlocks guide your operators through a predefined valve operating sequence with coded keys for each step

A process interlocking example - chemical dosing
 Closed re-circulating water systems (heating or cooling water) requires dosing with chemicals on a regular basis. This can be completed using a dosing pot.

To prevent your operator coming into contact with dangerous product flow, valve interlocks are fitted to the inlet (return) (V1), outlet (flow) (V2) and filling (V3) valves.

The valve interlocking sequence guarantees that the filling valve can only be opened when the inlet and outlet are closed.

Applications

Plant efficiency will be important to you. Your operators work in potentially hazardous environments that are subject to fast pace change: They have a job to fulfill and often under time pressures. However, responding quickly may mean your operators risk misinterpreting information, are more easily distracted, or any other factor that could influence an action taken by your operators.

Your operator's decision can lead to industrial accidents of varying magnitudes. Using NL interlocks, you minimise these risks. We are able to work with you on your applications and recommend an interlock solution to support your requirements. Using our solutions you will optimise valve operation at your plant, ensure safety and reduce the risk of human error.



How our solutions help you

Pressure safety valves (PSV)	To guarantee that only one relief valve can be offline or under maintenance
Pig launching / receiving	To only allow the closure door to be opened when the vessel is depressurised, free from product and isolated
Decoking	To assure safe change over from cracking to de-coking of the furnace
Inert gas systems	To prevent the inlet and outlet of a tank being closed simultaneously
Pump startup	To guarantee that the suction valve is open during a startup
Flare system / lines	To ensure there is always an open path to the flare
Boiler blow-down	To prevent the drain and vent being opened at the same time
2 out of 3	To assure that two out of three instruments (i.e. pressure gauge, level gauge) are always online
Chemical dosing pot	To ensure that the pot is fully isolated before filling
Amine absorber	To guarantee that the drain can only be opened when the vessel is isolated
HP fuel gas heater	To ensure that one heater is always online
Closed drain drum	To prevent simultaneous opening of the vent and liquid drains
Overfilling prevention	To prevent overfilling of a vessel
Gas train alignment	To prevent cross connection of trains and assure that only the isolation valve of one train can be opened at any one time
Pump routing	To guarantee the correct valves are open when pumping from the vessel
Flare system	To prevent air getting into a flare system when draining from a vessel or reactor
Drain system	To ensure that only one drain line is opened to drain the vessel
Vessel filling	To guarantee that only one route at a time is open during filling of the vessel
Vessel isolation	To prevent hydrocarbon outbreak via a vent or drain

'We remove human error from the equation.'

Mechanical interlocks

No modification to your valves

Our interlocks can be mounted without any modification to your valves. The interlock is installed with the original valve lever or handwheel removed and replaced by the NL interlock with a new sliding lever or handwheel.

Stand-alone or sequential control

Single key interlocks lock your valves in either the open or closed position and are typically used for stand-alone valves. Double key interlocks lock your valves in both positions and form part of an interlocking sequence.

Robust and hard-wearing

We have eliminated nearly all rotating movements from our lock designs. You insert a key linearly and the internal locking mechanism consists only of linear moving components. This reduces internal wear and tear. Its robust design ensures only periodic maintenance is required to keep your interlocks in good condition.

'The NL linear key is robust and operator friendly.'



Your quarter-turn and multi-turn valves

Our valve interlocks are designed to suit all your manually operated valves. They can be used as a standalone, or more commonly, as part of an interlocking sequence to guarantee your safe valve operation.



NDL (Ninety degree lock)

NDL interlocks suit all types of 90° valves - including ball, butterfly and plug valves. Our interlocks are fitted to your valve using a custom-machined anchor and adaptor.



MRL (Multi rotation lock)

MRL interlocks suit all types of handwheel and gear operated valves. Our interlocks are fitted to your valve using a custom-machined anchor and adaptor.

Valve interlock registration

We register all the important information on every individual lock we supply; this includes a record of purchase and valve tag information to include valve sizes, brands and line numbers. Key codes, serial numbers, lock type and other related information are also registered.

- We guarantee that key codes will not be duplicated and they are unique to your plant.
- Lost keys can be replaced easily and quickly.
- New valve interlocks that are part of an existing sequence can be easily supplied.

Your interlocking solutions



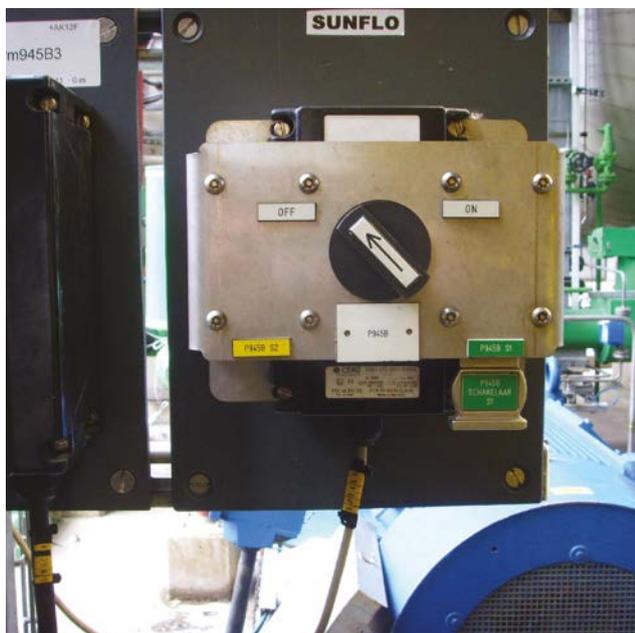
ALS (Actuator locking system)

Using the ALS, you can fully integrate your actuators into your valve interlocking sequences. You can lock and regulate the operation of components of an actuator, using our linear key principle.



ASLP (Actuator switch lock panel)

The ASLP is an electronic locking system, used to control your valves remotely. Using our linear keys, the ASLP locks the control system of the MOV. With the correct key inserted, you can operate your MOV remotely. Once the MOV is fully operated, a second key is released in the sequence.



ESL (Electrical switch lock)

The ESL is used when you need to include an electric power source into your manual valve operating sequence. You can only turn the switch when the dedicated key is inserted. After turning the switch, a second key is released, which continues the sequence but prevents the switch being operated again.



CL (Closure lock)

The Closure Lock is suitable for every type and size of closure door. The CL prevents removal of the bleed bolt to proceed to open the vessel door. Only when it is safe to do so, and with the dedicated key, will you be able to access and remove the bolt. This key is only released again after the door is closed and the bleed bolt back in place guaranteeing safe working procedures.



CKC (Compact key cabinet)

The CKC houses your interlock keys in your control room and gives you a visual indication of the status of your valves and related systems. As each position is hard-coded, you can only return your interlock key to its dedicated cabinet position.



MPCU (Mechanical process control unit)

The MPCU guides you to open and close all valves in a safe order. While most mechanical interlocks enforce a linear sequence, with the MPCU, you can complete non-linear sequences. This is ideal for use in pigging processes.

Service support

You want the right people with the right skills and resources at a time when you need them most. That is critical to efficient valve operations and getting your plant fully operational as quickly as possible.



Our team of highly trained and experienced site technicians is available to help you address your plant needs. We offer practical support to cover the following areas:

Installation and commissioning

We ensure your equipment is installed and handed back over to you in the most efficient manner.

Valve topwork measurements

We take detailed measurements from site to ensure that we have the data right first time and there are no hold ups or delays.

Emergency call out and repair

We can help you to get your systems back up and running with minimal downtime.

Maintenance

We recommend regular maintenance of your equipment to keep your assets in good working condition.

Stand by and turnaround services

We are responsive to your plant needs and can work with you in advance of your turnarounds to ensure everything happens as smoothly as possible and any interlock issues are speedily resolved.

Training

We develop and design training to suit your needs and to empower your operators with practical skills and knowledge.

'Whatever your plant need, our site team are here to help you.'

Experience

Netherlocks' interlock solutions mitigate significant environmental and workplace risks by removing the 'human factor' element. With our extensive track record, we retain the confidence of our customers by providing customised solutions that greatly enhance safety and efficiency.



TOTAL



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The Chemical Company

HYUNDAI
HEAVY INDUSTRIES CO., LTD.



JGC

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SAIPEM

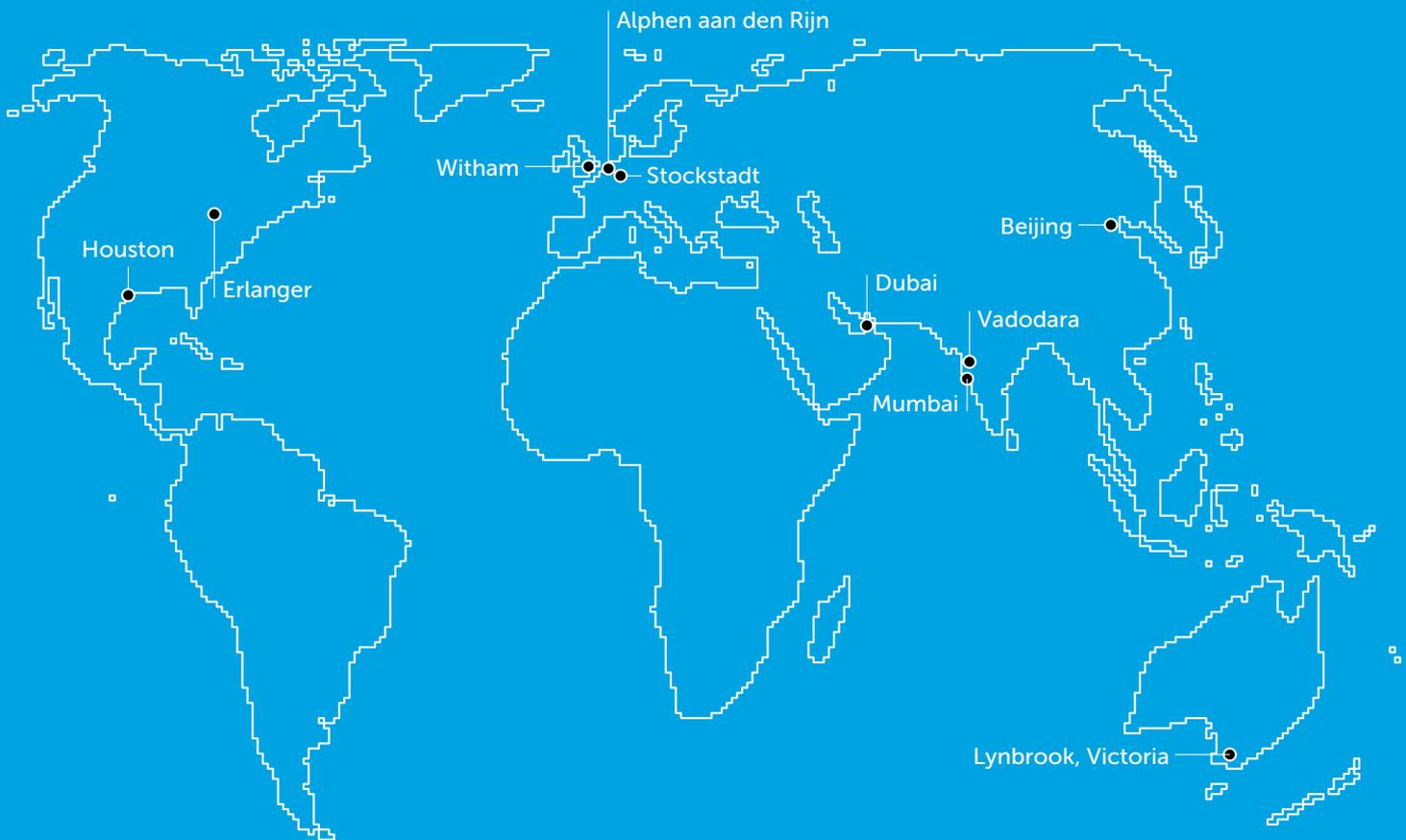


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Petrofac 

Smith Flow Control and Netherlocks have merged. We are Sofis, the leading valve operation specialists. With our combined expertise we offer smart integrated solutions to optimise valve operation. Our products help create a safer and more efficient working environment and are often regarded as the industry standard. We work closely with our customers and provide simple and reliable solutions.



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